



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/033,378	10/24/2001	Valentino Liva	JNP-0184.01	7774
26615	7590	03/08/2006	EXAMINER	
HARRITY SNYDER, LLP 11350 Random Hills Road SUITE 600 FAIRFAX, VA 22030			SCHEIBEL, ROBERT C	
			ART UNIT	PAPER NUMBER
			2666	

DATE MAILED: 03/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/033,378	LIVA ET AL.	
	<b>Examiner</b> Robert C. Scheibel	<b>Art Unit</b> 2666	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 13 December 2005.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 56-92 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 56-92 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____.
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>6/12/02, 10/11/05</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____.

**DETAILED ACTION**

- This action acknowledges the receipt of the amendment filed 12/13/2005.
- Claims 1-55 have been cancelled.
- New claims 56-92 have been added.
- Claims 56-92 are currently pending.

***Response to Arguments***

1. Applicant's arguments, see pages 11-14, filed 12/13/2005, with respect to new claims 56-92 have been fully considered but they are not persuasive. First, applicant argues that the rejection of claims 1-55 is moot as these claims have been cancelled in the amendment filed 12/13/2005. Examiner agrees with this assertion.

Starting on the fourth paragraph of page 11, applicant argues that claims 56-92 are not anticipated by Nazarathy et al. Examiner respectfully disagrees with the assertion as stated below. Applicant summarizes independent claim 56 in the fourth paragraph of page 11. Applicant then argues that these limitations (of claim 56) are not disclosed in Nazarathy. For example, Applicant states that the limitation of dynamically allocating a downstream or an upstream channel is not disclosed in Nazarathy. However, Nazarathy discloses the allocation of channels (mini-slots) by a CMTS in lines 14-16 of column 5. Nazarathy also discloses an embodiment in which the CMTS is placed within a fiber node in lines 36-51 of column 35. Applicant contends (in the first full paragraph of page 12) that Nazarathy discloses only the moving of digital burst receivers from the head end to the fiber nodes and that Nazarathy does not disclose fiber nodes comprising a CMTS. However, it is clear from the above-cited passage

(lines 36-51 of column 35) that Nazarathy does in fact disclose fiber nodes comprising a CMTS.

Applicant asserts similar arguments regarding independent claims 74 and 92; for the reasons stated above, these arguments are unpersuasive.

***Specification***

2. The disclosure is objected to because of the following informalities: the attorney docket number in line 20 on page 1 of the specification (“Docket No. PBC.2000.108) should be replaced with the application serial number.

Appropriate correction is required.

***Claim Objections***

3. Claim 85 is objected to because of the following informalities: “CMTS” on line 1 should be “the CMTS”. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 56-60, 62-66, 74-78, 80-84, and 92 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,490,727 to Nazarathy et al.

Regarding claims **56, 74, and 92**, Nazarathy discloses a fiber node in a hybrid fiber-coax network (HFCN) located between an upstream facility and a plurality of cable modems (the deep fiber nodes 296 of figure 14-15, for example), comprising: a cable modem termination system (CMTS) comprising (the limitation of the CMTS (also known as the ITS in Nazarathy) being placed within the fiber node is disclosed in lines 36-51 of column 35): a transmitter to transmit data to the cable modems as downstream analog radio frequency (RF) signals over a plurality of downstream channels (the combination of the modulator and frame mapper (elements 88 and 90 in figure 1a, for example)), a receiver to receive upstream analog RF signals from the cable modems over a plurality of upstream channels and extract data from the upstream analog RF signals (the collection of burst receivers 106/194 of figures 6/7 for example), and a processor (the CPU 96 of figure 1a), connected to the transmitter and the receiver, to: provide the data to the transmitter (see figure 2 indicating that the processor provides the payload and MAC messages to the transmitter), receive the extracted data from the receiver and send the extracted data to the upstream facility (see lines 24-28 of column 2, for example, which describes the conversion of the received signals back into the original data packets), and dynamically allocate a downstream channel or an upstream channel during operation of the fiber node (see lines 14-16 of column 5, for example). Claims 74 and 92 contain no additional limitations and are thus rejected as described above with respect the language of claim 56.

Regarding claims **57 and 75**, Nazarathy discloses the limitation that the transmitter includes a plurality of modulators, where each of the modulators corresponds to one of the downstream channels in lines 55-60 of column 1.

Regarding claims **58 and 76**, Nazarathy discloses the limitation that the receiver includes a plurality of demodulators, where each demodulator corresponds to one of the upstream channels in lines 29-32 of column 2 which indicates that the receiver (the collection of burst receivers) includes a plurality of demodulators (each individual burst receiver).

Regarding claims **59, 60, 77, and 78**, Nazarathy discloses the limitation that the CMTS is configured to communicate with the upstream facility via a packet network in figure 18 which shows the data from the fiber nodes being communicated to upstream devices over a gigabit Ethernet network.

Regarding claims **62, 63, 80, and 81**, Nazarathy discloses the limitations that the CMTS is configured to isolate multiple upstream channels, less than all of the upstream channels, and combine the extracted data from the isolated upstream channels for transmission to the upstream facility in lines 47-52 of column 17. The isolated channels are the standard (non-legacy) channels that will be sent to the burst receivers. These isolated channels are not related in function or frequency; they can each belong to a separate end user.

Regarding claims **64, 65, 82, and 83**, Nazarathy discloses the limitations that the CMTS is configured to send data associated with one of the upstream channels to the upstream facility without extracting the data associated with the one upstream channel in lines 47-52 of column 17. The legacy transmission is transmitted upstream via an analog return laser to the upstream components.

Regarding claims **66 and 84**, Nazarathy discloses the limitations that the upstream facility is an upstream hub or an upstream head end in the headend 8 shown throughout in various figures.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims **67-73 and 85-91** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,490,727 to Nazarathy et al in view of U.S. Patent 6,574,797 to Naegeli et al.

Regarding claims **67 and 85**, Nazarathy discloses all the limitations of the parent claims 56 and 74 as discussed above. Nazarathy does not disclose expressly the limitations of claims 67 and 85 of determining that there is a problem associated with one or the upstream channels or one of the downstream channels. Naegeli discloses determining that there is a problem with a channel throughout. Consider the first paragraph of the abstract, for example, which indicates this limitation (“a frequency channel determined to be unacceptably noisy”). Nazarathy and Naegeli are analogous art because they are from the same field of endeavor of data transmission

using cable modems. At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify Nazarathy to add the method of detecting a problem channel and finding a cleaner bandwidth. The cleaner bandwidth can be either within the current frequency or switching to another frequency; both are disclosed by Naegeli. The motivation for doing so would have been to avoid interference caused by noise as indicated in Naegeli in lines 27-45 of column 4 and to thus avoid the reduction of throughput or interruption of service discussed in lines 1-2 of column 5 of Naegeli. Therefore, it would have been obvious to combine Naegeli with Nazarathy for the benefit of avoiding interference caused by noise to obtain the invention as specified in claims 67 and 85.

Regarding claims **68 and 86**, the above combination of Nazarathy and Naegeli discloses the limitation that the CMTS is configured to scan an entire spectrum associated with the one upstream channel or the one downstream channel in real time to identify a part of the spectrum that is free of the problem throughout, see lines 3-11 of column 6, for example.

Regarding claims **69 and 87**, the above combination of Nazarathy and Naegeli discloses the limitation that the CMTS is further configured to resize the one upstream channel or the one downstream channel in the selection and subsequent use of the cleaner, narrower bandwidth within the frequency channel discussed throughout; see the first sentence of the abstract and figure 4, for example.

Regarding claims **70 and 88**, the above combination of Nazarathy and Naegeli discloses the limitation that the CMTS is further configured to dynamically increase or decrease bandwidth associated with the one upstream channel or the one downstream channel in the

selection and subsequent use of the cleaner, narrower bandwidth within the frequency channel discussed throughout; see the first sentence of the abstract and figure 4, for example.

Regarding claims **71 and 89**, Naegeli discloses the limitation that the CMTS is further configured to move the one upstream channel or the one downstream channel to a new frequency in lines 3-12 of column 5.

Regarding claims **72 and 90**, Naegeli discloses the limitation that the CMTS is further configured to allocate an additional upstream channel or an additional downstream channel in lines 3-12 of column 5; the unused, cleaner channel is the additional channel that is allocated.

Regarding claims **73 and 91**, Naegeli discloses the limitation that the CMTS is further configured to move one or more of the cable modems associated with the one upstream channel or the one downstream channel to another one of the upstream channels or another one of the downstream channels without registering the moved one or more cable modems in lines 3-12 of column 5.

9. Claims **61 and 79** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,490,727 to Nazarathy et al in view of U.S. Patent 6,839,413 to Brock et al.

Nazarathy discloses all the limitations of parent claims 56 and 74 as discussed above. Nazarathy does not disclose expressly the limitations of claims 61 and 79 of compressing and merging the extracted data. However, the use of data compression is well known in the art. For example, Brock discloses compressing data in lines 10-17 of column 1. Nazarathy and Brock are analogous art because they are from the same field of endeavor of data communications. At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify

Art Unit: 2666

Nazarathy to compress the extracted data before it is multiplexed/merged and sent upstream. The motivation for doing so would have been to make more bandwidth available and transmit the data more quickly as suggested by Brock in lines 16-17 of column 1. Therefore, it would have been obvious to combine Brock with Nazarathy for the benefit of making more bandwidth available and transmitting the data more quickly to obtain the invention as specified in claims 61 and 79.

***Conclusion***

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

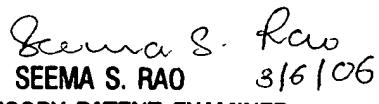
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert C. Scheibel whose telephone number is 571-272-3169. The examiner can normally be reached on Monday and Thursday from 6:30-5:00 Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema S. Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Robert C. Scheibel  
Examiner  
Art Unit 2666

  
SEEMA S. RAO 3/6/06  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600